디지털 문명, 지속가능의 길을 묻다

2023. 7. 13 (THU)
14:00

한국고등교육재단 지하3층 컨퍼런스홀

주최

태재미래전략연구원

주관

태재대학교

태재연구재단

DQ Institute

DQ LAB

ChosunMedia 조선일보

PROGRAM

태재미래전략연구원

포럼 〈디지털 문명, 지속가능의 길을 묻다〉

14:00 오프닝

김성환 태재미래전략연구원 원장

14:05 기조 발제

반기문 전 UN 사무총장

14:30 ~ 15:20 주제 토론

발표 1 **The Demise of Community: How Digital Technologies could destroy democracy**

김용학 전 연세대학교 총장

발표 2 **Digital Age and Sustainability: Digital Technology, AI and Education**

이리나 보코바 전 UNESCO 사무총장

발표 3 **Digital-ESG: ESG for AI**

박유현 DQ Institute 대표

15:20 ~ 16:00 토론 및 질의응답

1 태재미래전략연구원 소개

태재미래전략연구원은 인류 공영과 지속 가능 발전을 위한 정책을 수립하고
세계 변화를 주도할 인재를 양성하기 위해 설립된 비영리 민간 싱크탱크입니다.

2015년 12월 ㈜한샘 창업주 조창걸 명예회장의 출연으로 여시재가 설립됐으며
2023년 봄, 태재미래전략연구원으로 개편했습니다.

혁신적 교육기관 태재대학교와 더불어
인류 공영과 더 나은 미래를 위한 비전을 제시하고자 합니다.

태재미래전략연구원은 문명사적 대전환의 시대를 맞아
세계 변화를 예측하고 능동적으로 대비하는 연구가 필요하다는 문제의식에서 출발했습니다.

이를 위해 국내외 최고의 싱크탱크 및 정책 전문가들과
지식을 나누고 교류하며, 축적된 지식을 토대로 정파를 초월하여
구체적이고 실천적인 정책 솔루션을 제안합니다.

또한 국제세미나와 포럼, 출판 활동 및 국내외 유력 매체들과의 협업을 통해
태재미래전략연구원의 연구 성과가 공감대를 얻고 영향력을 확보할 수 있도록 노력하고 있습니다.

2 연구주제

지속불가능 극복하는 지구

환경오염과 기후변화, 핵확산과 테러리즘 등
지속불가능에 직면한 인류의 위기를 해결해야 합니다.

갈등에서 협력으로의 대전환

중국의 부상으로 고조되고 있는 미중 갈등 상황을
협력으로 전환시켜야 합니다.

디지털 전환이 가져올 사회 변화

기술 혁명이 인류를 위해 선용될 수 있는
디지털 사회를 만들어가야 합니다.

동양과 서양이 융합된 시대 가치

자연과 인간이 조화를 이루고 동양과 서양이 융합하는
새로운 시대의 가치를 창조해야 합니다.

포럼 〈디지털 문명, 지속가능의 길을 묻다〉

환영사

김성환 태재미래전략연구원 원장

안녕하십니까? 태재미래전략연구원장 김성환입니다.

먼저 오늘 포럼에 귀한 발걸음을 해주신 참석자 여러분들께 환영과 감사의 인사를 드립니다. 그리고 포럼의 기조 발제를 맡아주신 반기문 제8대 UN 사무총장님께 깊은 감사를 드립니다. 포럼의 좌장 겸 토론자 역할을 맡아주신 김용학 전 연세대학교 총장님과 토론자로 함께해 주신 이리나 보코바 전 유네스코 사무총장님, 박유현 DQ연구소 대표님께도 감사의 말씀 전합니다. 오늘 포럼이 이렇게 멋진 공간에서 열릴 수 있도록 협조해 주신 한국고등교육재단에도 감사의 인사를 드립니다.

태재미래전략연구원은 인류의 공영과 지속 가능 발전을 위한 정책을 수립하고 더 나은 미래를 위한 비전을 제시하기 위해 노력하고 있는 민간 싱크탱크입니다. 우리 연구원에서는 최근에 놀라운 속도로 진화하고 있는 AI가 주는 기회와 위험의 양면성에 주목하면서 디지털 기술이 가져올 사회 변화를 전망하고 기술이 인류를 위해 선용 될 수 있는 방안에 관한 연구를 진행하고 있습니다.

지금 국제 사회에서는 AI의 발전 속도가 너무 빠른 나머지 인간의 통제력을 벗어나 기후 위기나 핵전쟁보다 더 무서운 문명 파괴자가 될 수 있다고 우려하고 있습니다. 이 같은 상황에서 우리 연구원이 '디지털 문명, 지속가능의 길을 묻다'는 주제로 포럼을 개최할 수 있게 된 것을 매우 뜻깊게 생각합니다.

오늘 포럼은 AI를 비롯한 디지털 기술이 일으킬 혁명적 변화 속에서 인류가 직면한 위협 요인을 살펴보고 지속 가능한 미래를 만들어가기 위한 방안을 논의하기 위해 마련했습니다. 인류가 쌓아온 가치와 규범이 뿌리째 흔들릴 수도 있는 위협 속에서 윤리적 균형을 찾고 기계와 인간이 조화롭게 공존할 수 있는 해법을 함께 생각해 보고자 합니다.

오늘 포럼의 기조 발제를 맡아주신 반기문 총장님께서는 여러분께서도 잘 아시는 바와 같이 지속가능발전목표 채택과 파리기후변화협약을 이끌어내는 등 인류의 지속 가능한 발전을 위해 많은 업적을 쌓으셨으며 지금도 불철주야 이를 위해 진력하고 계십니다. 토론자로 함께해 주신 세 분도 우리 시대가 당면한 도전 과제에 대한 많은 연구를 하시고 그 해법을 찾기 위해 진력하고 계신 분들입니다. 오늘 포럼을 통해 이 자리에 함께하신 모든 분들이 네 분 발표자들의 전문적인 식견과 통찰력을 함께 나눌 수 있는 기회가 되기를 바랍니다.

역사를 살펴보면 혁명적 기술의 양면성은 늘 있어 왔습니다. 디지털 기술이 인류 전체의 번영에 기여하기 위해서 우리가 무엇을 해야 하는지, 또한 기술의 진보가 미래 사회에 긍정적인 영향을 주기 위해 해결해야 할 과제들은 무엇인지 경청하고 싱크탱크로서의 역할을 함께 고민하겠습니다.

앞으로도 태재미래전략연구원에 많은 관심과 성원을 부탁드리며, 참석해 주신 모든 분들께 다시 한번 깊은 감사의 인사를 드립니다.

포럼 〈디지털 문명, 지속가능의 길을 묻다〉

기조 발제

반기문 전 UN 사무총장

Chairman Kim Do-yeon and President Kim Seong-hwan of the Taejae Future Consensus Institute, Chancellor Yeom Jae-ho and Dr. Kim Yong-hak of Taejae University, Madame Bokova, former Director-General of UNESCO, Madame Park Yu-hyun of the DQ Institute, Distinguished guests, Ladies and gentlemen.

It is my great pleasure to present this forum on sustainability and artificial intelligence, probably two of the most discussed topics these days. My deep gratitude goes to the four institutions hosting this timely event: the Taejae Future Consensus Institute, along with Taejae University, the DQ Institute and the Chosun Ilbo.

Before I say something, I must confess to you that I should be one of the last people who should talk about this artificial intelligence. I am far behind all this trend. But you should know that when I assumed my job as a secretary general, my predecessor Secretary-General Kofi Annan barely knew anything about the computer or e-mail and people were surprised that I was communicating, responding to all questions and answers in e-mail. So that much I was a little bit ahead, but far behind you. Then why am I speaking about this AI? I raise the issue because this must be a very serious challenge for humanity.

And I raised the issue to the members of 'The Elders' - there is an organization, a small group of just 11 people, of former presidents or Nobel Peace laureates. I am working as vice chairman of this 'The Elders' group. They came to Korea last May and we had a meeting, an audience with president Yoon Suk Yeol. I raised that we must talk about the AI, otherwise it may be a blessing or it may be a catastrophe for humanity.

Then among us with some help of some experts we made the recommendation to my successor Secretary-General Antonio Guterres immediately and we sent our common recommendation that the United Nations should take this very challenging issues at the level of the United Nations before anything happens. And Secretary-General answered that this will be one of his top agendas and the United Nations will deal with this matter at the General Assembly and other informed agencies.

This is what I'd like to tell you: I confess that I'm not an expert but I know that this has some very serious implications. That's why I accepted this invitation.

Ladies and gentlemen, together, we gather here to address one crucial question: Are we on track to achieve the United Nations' Sustainable Development Goals (SDGs) by the year 2030? As we now stand exactly halfway through our journey, it is time to reflect on where we have been and recalibrate our future sustainable development goals, not just through 2030, but beyond as well.

The SDGs were born as a universal call to action, urging us to eradicate poverty, protect the planet, and ensure peace and prosperity for all. Just in an easy way, I have been speaking out a hundred, a thousand times to the people of the world that by 2030 there should be nobody who should die from poverty or hunger. There should be nobody who suffer because of the lack of food. There should be nobody who should die unnecessarily from preventable diseases. There are some unpreventable diseases still but I'm talking about preventable diseases.

Madame Irina Bokova's priority is education. There should be no children who should not be able to graduate at least secondary school and there should be no difference between men and women, etc. So this is by far the most ambitious, most far reaching vision the United Nations has ever presented to the people of the world.

Now this is not the subject here but this has a serious connection on climate change as well as SDGs. If we use AI, I think we may be able to make it happen faster.

To make matters worse, each new piece of technology we develop to improve our lives tends to come with additional challenges we need to overcome. And this further complicates our effort to achieve our sustainability goals in a timely manner. This rings especially true with the recent arrival of artificial intelligence (AI)-based technologies.

What is the meaning of sustainability in the digital age?

Let me answer this question by addressing three urgent challenges that currently demand our immediate attention.

First, AI technology has the power to transform human experience, yet we do not fully understand exactly how and to what extent it will affect us. There is no denying that it could help improve how we live, work, and conduct politics in the most profound fashion in the years to come. And we should try to maximize all the benefits it could provide, including ways to accelerate our progress toward a more sustainable future.

What concerns me, however, is the potential adverse effects. Putting AI in charge of critical decision making in place of humans could be particularly dangerous given the chances of misjudgments and accidents due to incomplete information, system failure, or sabotage. This could lead to fatal consequences, especially in areas such as national security. The latest advancements in AI, including ChatGPT, have prompted numerous national leaders, policy practitioners, and academics familiar with the technology to publicly voice their concerns about the associated risks. For instance, industry experts including the heads of OpenAI and Google DeepMind issued a statement not long ago, where they warned that AI poses as great a risk as pandemics and nuclear war because it could be not only weaponized, but also manipulated to destabilize and oppress society.

The Elders—a small advisory group of global leaders I am a part of—have long been concerned about this. It is our shared belief that AI is a double-edged sword. For all the good it can do, it can also do serious harm to nuclear safety, democracy, and human rights unless properly controlled. I just talked to my colleagues of The Elders: this may touch the divine area. If there is a God in the heaven and the heaven is angry, and then what will happen? It will be whole destruction of this planet earth. This is just a joke of course, not based on science but just my personal feeling. So that is why I raised this issue.

As a possible solution, the Elders have proposed establishing an international institution that monitors and controls the development and deployment of AI and other dual-use technologies, akin to what the Treaty on the Non-proliferation of Nuclear Weapons (NPT) and the International Atomic Energy Agency (IAEA) are doing in the nuclear arena.

The second challenge is that we have been slow to respond to the climate crisis that is ravaging the planet right now.

For many years, research has shown that regardless of the goals set out in the Paris Climate Change Agreement, we are not doing enough, we are far behind our schedule to stem the worsening tide. The dire consequences of such lack of urgency and accountability are manifest in the extreme weather events, rising sea levels, and alarming loss of biodiversity we are presently experiencing worldwide. For example, the daily global average temperature on July 3rd this year reached 17.1 degrees Celsius, making it the hottest day on Earth in about 125,000 years. I don't know whether they have temperature gauge of that time but anyway this is what scientists are telling us so we have no other way than to believe it. This marks the first time ever that we crossed the 1.5-degree Celsius threshold since the pre-industrial age. Scientists have long regarded it as the point of no return and urged us all to take immediate action before it was too late. Now global warming appears to be accelerating, bringing irreversible and unimaginable climate and other crises around the globe.

Not only that, a recent study shows that humans are extracting so much groundwater that the tilt of the Earth's axis is shifting by about two inches every year. Across the planet, sea levels are rising. I have seen for myself. I have visited all small south Pacific island in Caribbean. The sea level's rising. For example, country like Kiribati has purchased land in Fiji so that poor people can move to Fiji because the highest point of Kiribati's island is three meters high above sea level. I took protocol purpose photograph. Whenever VIP comes they are led to the highest point above the sea level in their island: three meters. Halla Mountain is 1950 meters and Baekdu mountain is 2744 meters above the sea level. So you can just imagine that many islands are disappearing. I was told by all the people that the island they have seen far away would suddenly disappear. This is a very dangerous time we are living in.

The third and final challenge is that our current SDGs lack the necessary instruments as well as the overarching framework to address a new set of issues arising in the digital age, in particular AI.

When the SDGs were first formulated, the primary focus was on building a more sustainable future for our planet and ourselves. However, in just a decade, technological advancements have come in leaps and bounds, fundamentally redefining the very relationship between us and the physical environment we inhabit. Now we live in not only the physical world, but also the digital world. AI, the Metaverse, and other emerging technologies are turning the digital world into a very realistic extension of the physical world and more.

Yet the existing SDGs mainly concern our physical environment and are poorly equipped to deal with the emerging digital space. Many issues such as cyberbullying, online sexual misconduct, data breaches, and fake news are plaguing the digital realm and putting the long-term safety of our children, businesses, and society at risk. The political, financial, and psychological harm they inflict exacerbates broader social issues such as unemployment, inequality, and breakdown of democracy, threatening the sustainability of both the physical and digital worlds.

Sustainability in the age of AI means developing the ability to respond to the above-mentioned challenges in the most effective and timely manner possible. That in turn means we need to update our understanding and build a new institutional framework on sustainability. To do so, I suggest we consider the following three courses of action.

First, we need to clearly delineate the limits we should abide by in developing and deploying AI. This process will require lengthy national and global debates about what AI is capable of, what its pros and cons are, and how to minimize the harmful effects, whether anticipated or not.

Second, we will need to make the most of the cutting-edge technologies at our disposal, including AI, to save the planet and ourselves. AI could be used to identify the shortcomings of the current measures and systems we have in place and set more ambitious goals and more effective strategies. It is time to start making fundamental changes across industries, economies, and societies to accelerate our progress toward Net Zero.

Third, we need to figure out how to promote and connect sustainability across both the physical and digital worlds. We must recognize both worlds as essential parts of human experience. They can and will affect, and be affected by, each other. A new sustainability framework must embrace this deep interconnectedness. And we need to pay attention to how the two worlds can contribute to the long-term sustainability of each other as we start thinking about the next stage of sustainability goals.

A good starting point for constructing a new paradigm would be to rethink how our economy works. That is, to introduce a new paradigm for the national and global economies that can further enhance their capacity for long-term sustainability. Ever since the Industrial Revolution 200 years ago, we relied on the linear economy that focused on profit maximization through the "Take, Make, Waste" approach. This approach has reached its limits, threatening the planet's ecological and climate systems.

To make our economic activities more sustainable, we have developed the circular economic model. Given the ever-worsening climate conditions, we must continue to make efforts to come up with a newer and better economic paradigm and practices. We may not have a consensus on what to call it yet. But one thing is crystal clear. The new paradigm must be environment-friendly, circular and sustainable. It must emphasize not just resource conservation and waste reduction, but significantly contribute to enhancing the sustainability of our planet as well.

In the dawning age of AI, we need a new economic framework that could harness the power of emerging digital technologies to enhance the productivity, profitability, and sustainability of our physical and digital worlds. The role of AI will be essential here. The new framework should provide both the developed and developing countries with the necessary tools to pursue sustainable growth while ensuring the digital well-being of their citizens.

So, how exactly do we approach sustainability issues in the age of AI?

The private sector plays a crucial role in achieving sustainability and needs to be held accountable from an Environmental, Social, and Governance (ESG)

perspective. Digital components need to be incorporated into ESG as we try to update our sustainability goals, with the global race for AI dominance raging on. We need to expand the traditional ESG framework to encompass various aspects of companies' digital activities, such as digital inclusion, digital skills, digital safety and security, digital rights, and more.

Companies must conduct business with transparency, accountability, and ethical standards. Furthermore, the COVID-19 pandemic has accelerated digitalization across many industries, exposing companies to unfamiliar risks. The business and private sectors need to align their digital strategies with sustainable practices and proactively address the potential harm and liabilities brought on by the use of digital technologies.

Ladies and Gentlemen, To unleash the true power of technology, we must create, use, and control it ethically and responsibly. We must ensure technology serves humanity, not the other way around. We must also ensure humanity controls technology, not the other way around.

Then and only then, can we achieve long-term sustainability and digital well-being as well as profit.

By embedding responsible digital use in corporate and national sustainability strategies, we can move one step closer to the 2030 Sustainable Development Goals and lay the foundation for the post-2030 development agenda setting. What must follow is interstate cooperation on establishing an international institution charged with monitoring and controlling the use of AI. Just as with nuclear energy, controlling a piece of technology as potent as AI requires a cautious, constant, and collective endeavor from the international community.

Thank you all for being here in person and online. Let me also offer my gratitude to our distinguished speakers, who will expertly guide us through some very interesting topics today. And remember, each and every one of us has a role to play in creating a world where innovation, prosperity, and sustainability go hand in hand.

This is what I just wanted to deliver to you: some of my thoughts, even though I regard myself an ignorant person on this where AI is concerned. But let us work together to make this world safe from AI, benefit from AI and to make this world sustainable and peaceful.

Thank you very much for your attention.

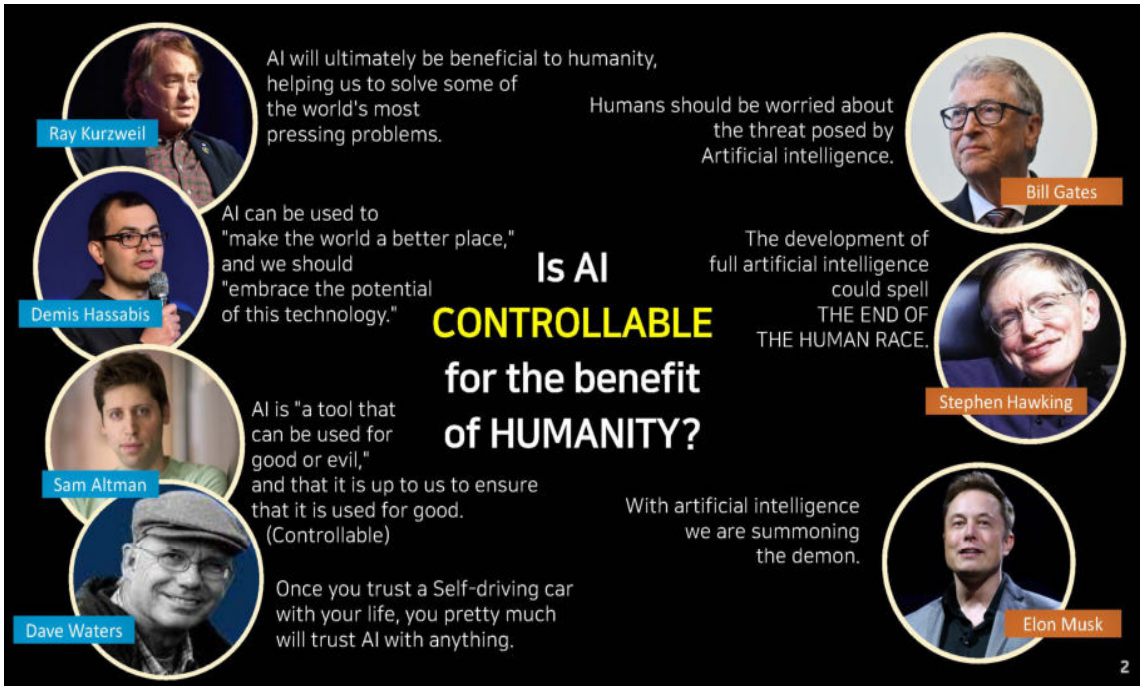
주제 토론

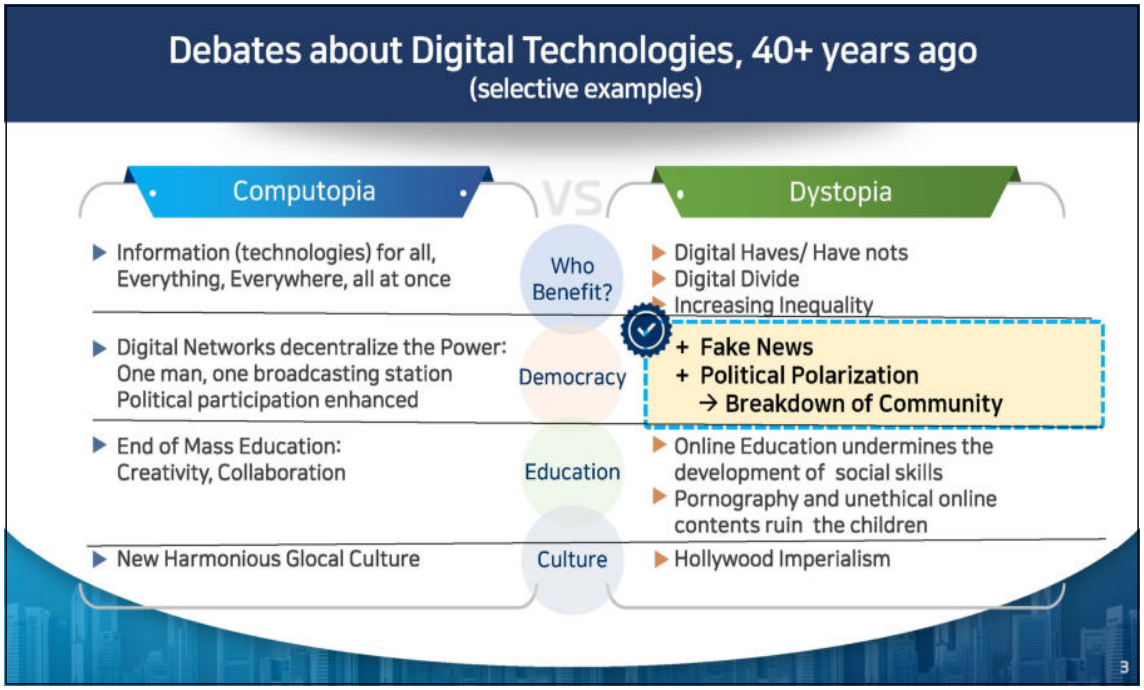
발표 1

The Demise of Community: How Digital Technologies could destroy democracy

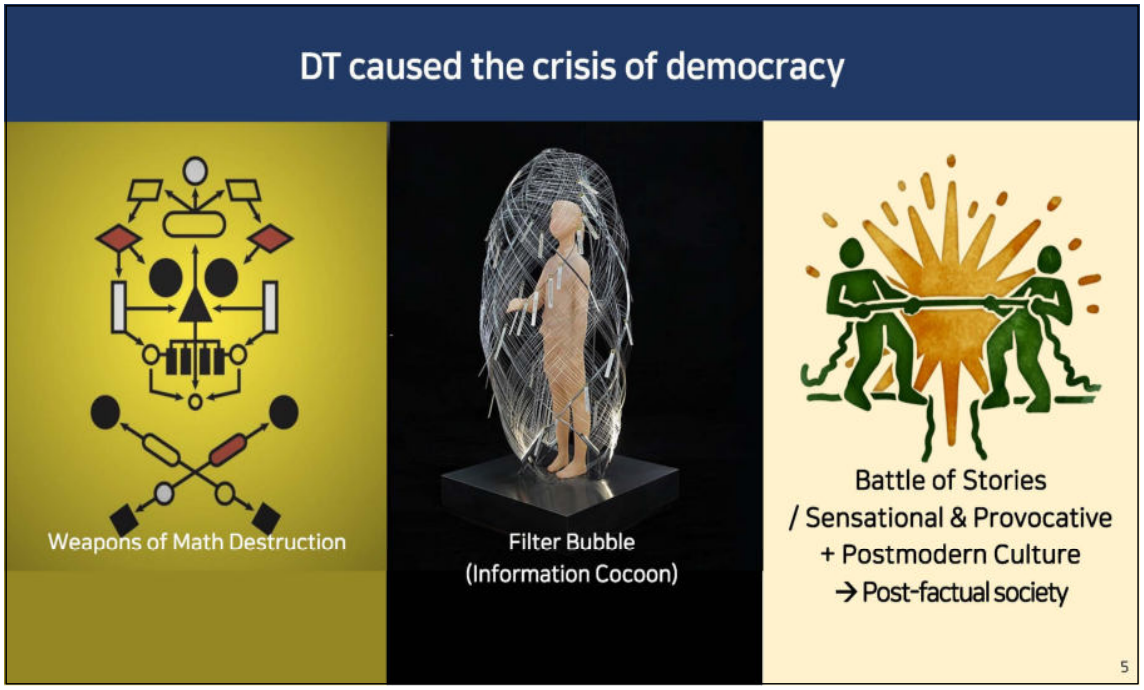
김용학 전 연세대학교 총장

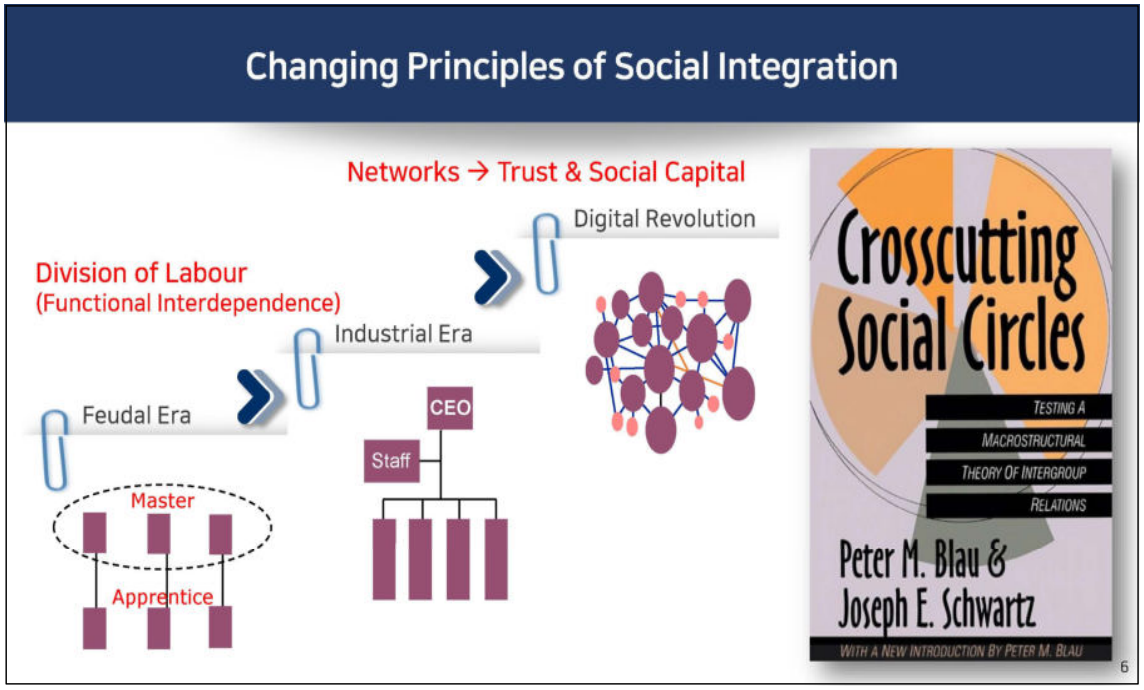

태재미래전략연구원
TAEJAE FUTURE CONSENSUS INSTITUTE
『디지털 문명, 지속가능의 길을 묻다』 포럼
The Demise of Community:
How Digital Technologies could destroy democracy
2023. 7. 13.
Kim, Yong Hak

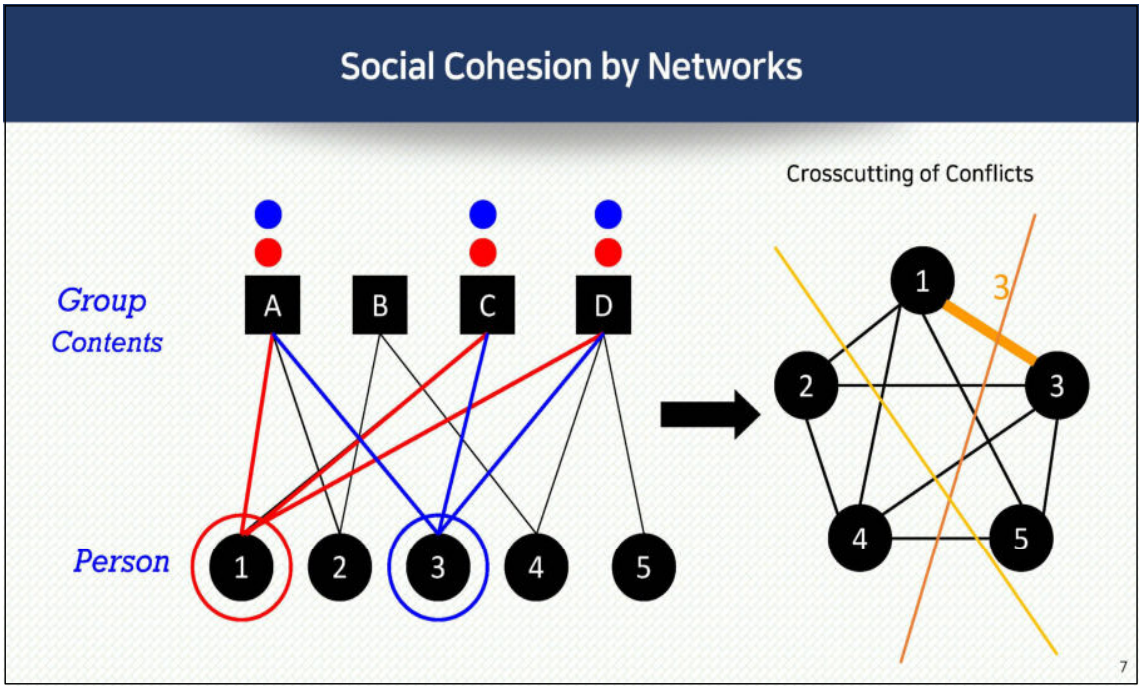

Ray Kurzweil
AI will ultimately be beneficial to humanity, helping us to solve some of the world's most pressing problems.
Humans should be worried about the threat posed by Artificial intelligence.
Bill Gates
Demis Hassabis
AI can be used to "make the world a better place," and we should "embrace the potential of this technology."
Is AI
CONTROLLABLE
for the benefit
of HUMANITY?
The development of full artificial intelligence could spell THE END OF THE HUMAN RACE.
Stephen Hawking
Sam Altman
AI is "a tool that can be used for good or evil," and that it is up to us to ensure that it is used for good. (Controllable)
With artificial intelligence we are summoning the demon.
Elon Musk
Dave Waters
Once you trust a Self-driving car with your life, you pretty much will trust AI with anything.
2

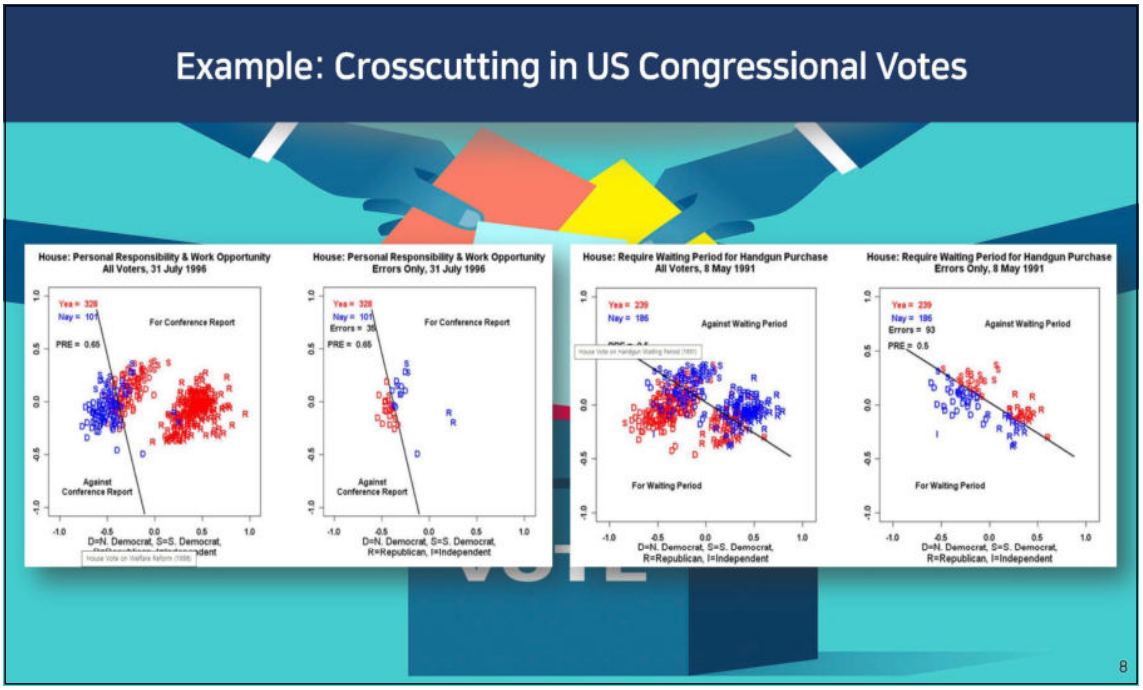

Debates about Digital Technologies, 40+ years ago
(selective examples)
Computopia
VS
Dystopia
Who Benefit?
Information (technologies) for all, Everything, Everywhere, all at once
Digital Haves/ Have nots
Digital Divide
Increasing Inequality
Democracy
Digital Networks decentralize the Power: One man, one broadcasting station Political participation enhanced
+ Fake News
+ Political Polarization
→ Breakdown of Community
Education
End of Mass Education: Creativity, Collaboration
Online Education undermines the development of social skills
Pornography and unethical online contents ruin the children
Culture
New Harmonious Glocal Culture
Hollywood Imperialism
3

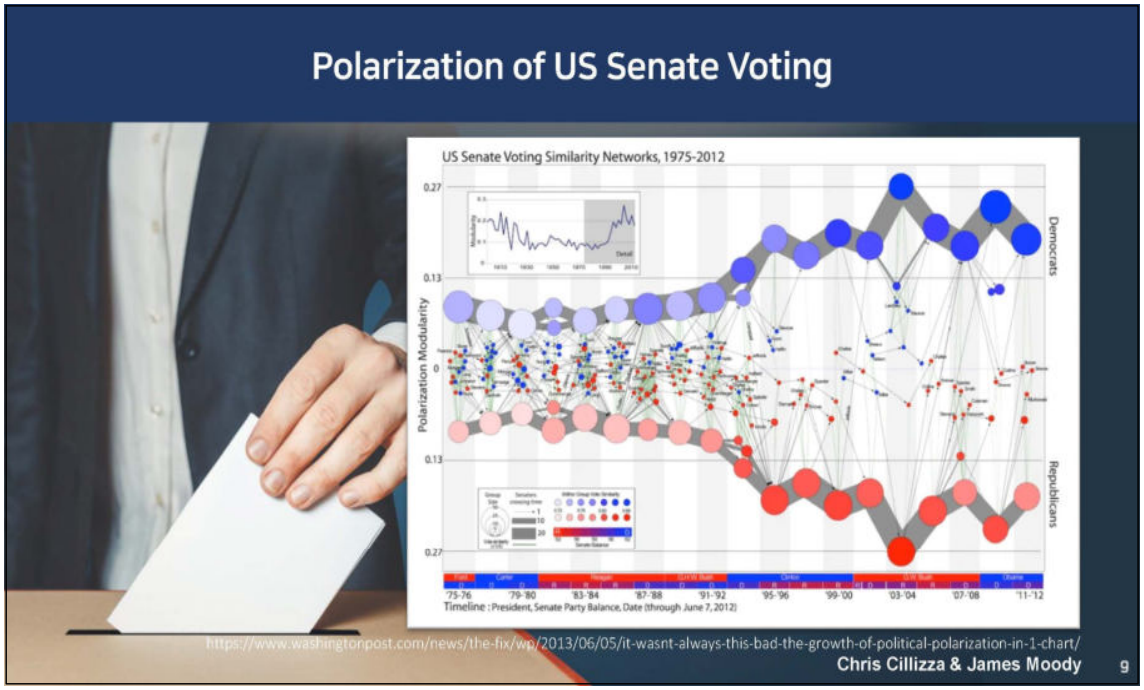

After 40+ years, who were right?
Digital Technologies
increased efficiency and productivity
Improved access to information and communication:
Sustainable production and consumption
by monitoring and managing natural resources
Predict and respond to disasters,
and to provide social and economic support in times of crisis.
>>Yet, digital technology is still a double-edged sword
4

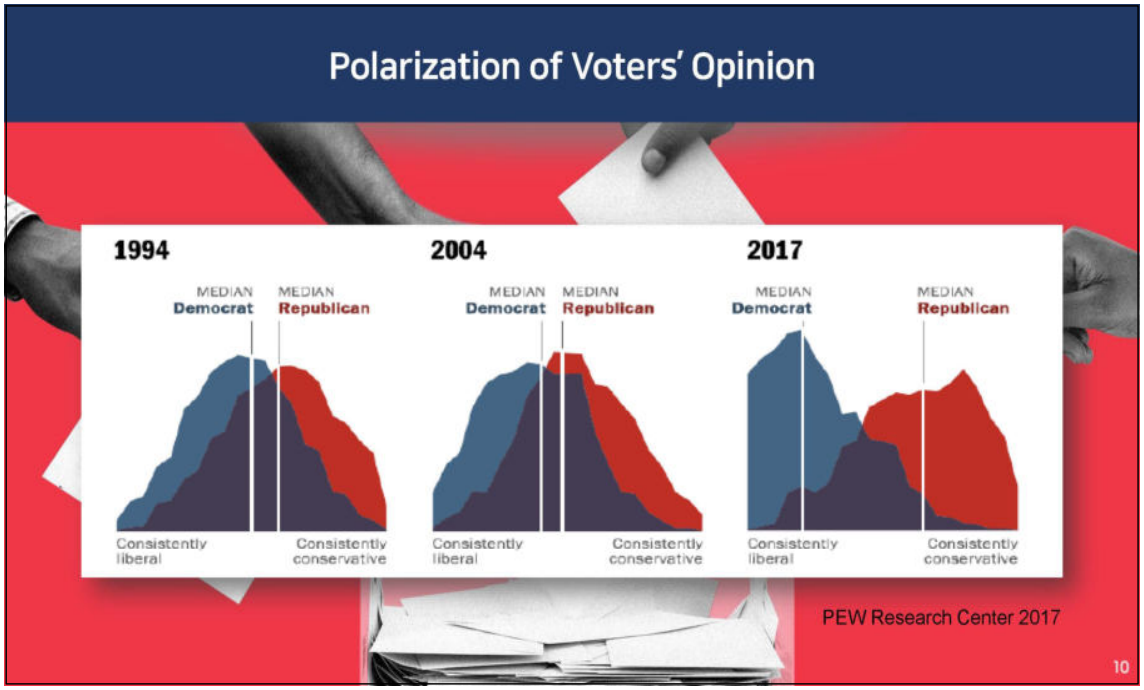

DT caused the crisis of democracy
Weapons of Math Destruction
Filter Bubble
(Information Cocoon)
Battle of Stories
/ Sensational & Provocative
+ Postmodern Culture
→ Post-factual society
5


Changing Principles of Social Integration
Networks → Trust & Social Capital
Digital Revolution
Division of Labour
(Functional Interdependence)
Industrial Era
Feudal Era
CEO
Staff
Master
Apprentice
Crosscutting Social Circles
Testing a Macrostructural Theory of Intergroup Relations
Peter M. Blau & Joseph E. Schwartz
With a New Introduction By Peter M. Blau
6

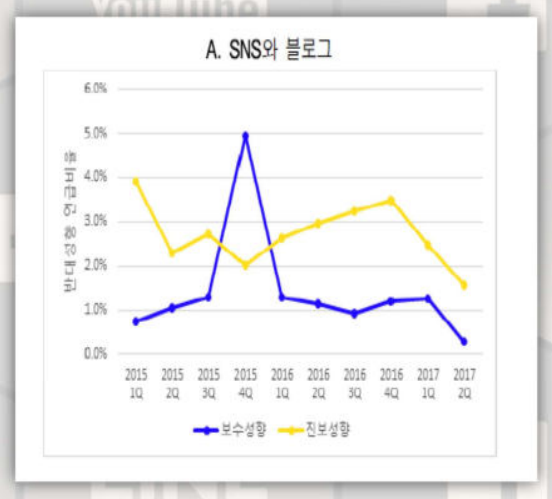

Social Cohesion by Networks
Crosscutting of Conflicts
Group Contents
A
B
C
D
Person
1
2
3
4
5
1
2
3
4
5
3
7


Example: Crosscutting in US Congressional Votes
House: Personal Responsibility & Work Opportunity All Voters, 31 July 1996
House: Personal Responsibility & Work Opportunity Errors Only, 31 July 1996
House: Require Waiting Period for Handgun Purchase All Voters, 8 May 1991
House: Require Waiting Period for Handgun Purchase Errors Only, 8 May 1991
For Conference Report
Against Conference Report
Against Waiting Period
For Waiting Period
D=N. Democrat, S=S. Democrat, R=Republican, I=Independent
8


Polarization of US Senate Voting
US Senate Voting Similarity Networks, 1975-2012
Polarization Modularity
0.27
0.13
0
0.13
0.27
Democrats
Republicans
75-76
79-80
'83-'84
'87-'88
'91-'92
'95-'96
'99-'00
'03-'04
'07-'08
'11-'12
Timeline : President, Senate Party Balance, Date (through June 7, 2012)
https://www.washingtonpost.com/news/the-fix/wp/2013/06/05/it-wasnt-always-this-bad-the-growth-of-political-polarization-in-1-chart/
Chris Cillizza & James Moody
9


Polarization of Voters' Opinion
1994
2004
2017
MEDIAN Democrat
MEDIAN Republican
Consistently liberal
Consistently conservative
PEW Research Center 2017
10

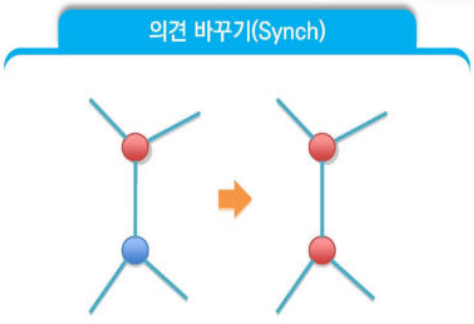
Keyword overlap between Conservative and Liberal online communities

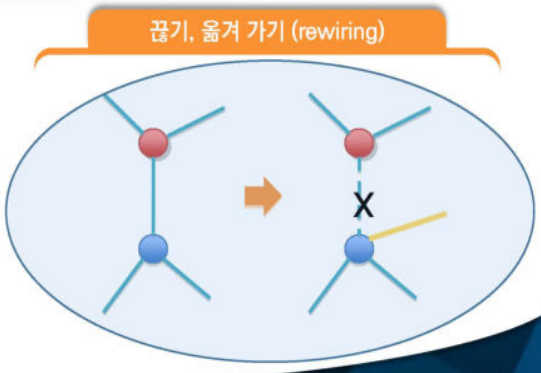


최동욱, 2019 "인터넷 미디어와 여론양극화"

11

Rewiring in On-Line Communication





Peer Influence
"친구 따라 강남 간다"

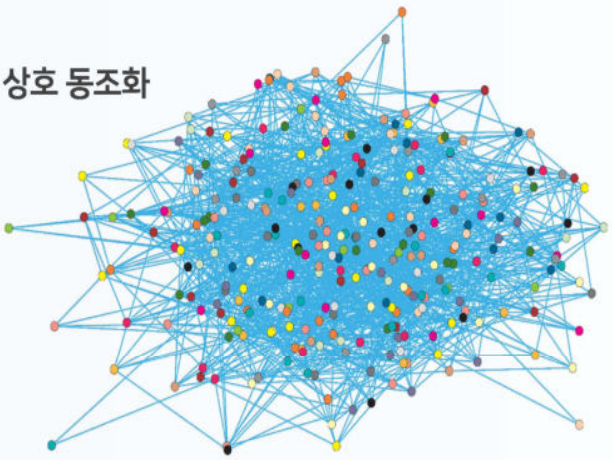
Rewiring
if tolerance level is exceeded

12

동조화와 Rewiring 시뮬레이션

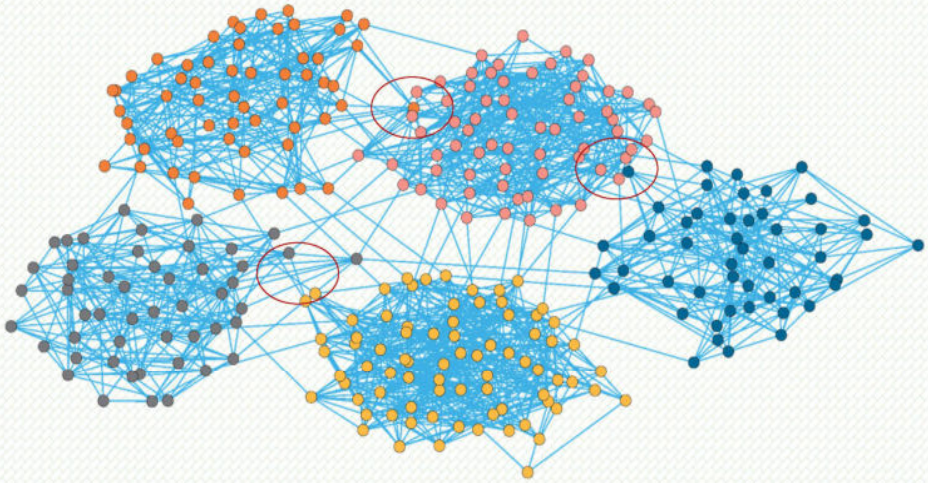
Tolerance D보다 큰 차이이면
끊고 옮겨 가기 + 연결된 선에 의한 상호 동조화

Initial condition: scale free network
with many opinions



13

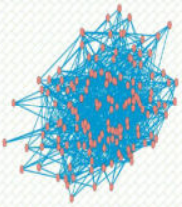
여러 의견 집단으로 분화하다가,



14

결국에는 양극화된 의견으로 집단 분열

<Information Cocoons>

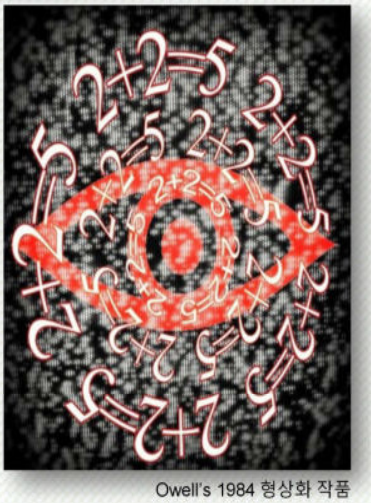


Trump supporters / or not
Brexit supporters / or not
조국 지지자

15

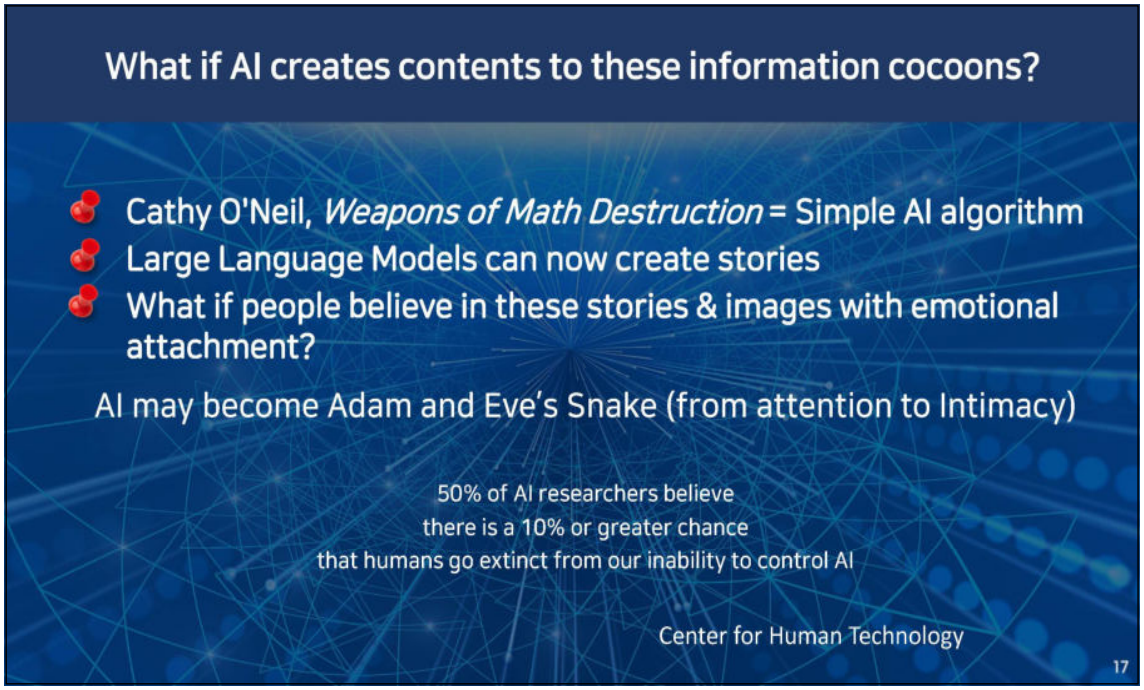
Net War: Battle of stories → Polarization

- Post-Fact Era
- Big Brother, 2+2=5, Alternative Facts
- 확증편향성 (Confirmation Bias)
- Information Cocoon
-



Owell's 1984 형상화 작품

16


What if AI creates contents to these information cocoons?
Cathy O'Neil, *Weapons of Math Destruction* = Simple AI algorithm
Large Language Models can now create stories
What if people believe in these stories & images with emotional attachment?
AI may become Adam and Eve's Snake (from attention to Intimacy)
50% of AI researchers believe
there is a 10% or greater chance
that humans go extinct from our inability to control AI
Center for Human Technology
17

주제 토론

발표 2

Digital Age and Sustainability: Digital Technology, AI and Education

이리나 보코바 전 UNESCO 사무총장

Digital Age and Sustainability:

Digital Technology, AI and Education

Taejae Future Consensus Institute
July 13th 2023

Irina Bokova
DG UNESCO
2009 - 2017

Every major technological revolution sets in motion a concurrent revolution in work, skills and education.

With the development of organized agriculture thousands of years ago, foragers settled on farms.

During the Industrial Revolution, steam engines drove those farmers into factories.

In the late 20th century, the arrival of the personal computer swapped machines for monitors and later laptops.

Yet while previous technological revolutions brought deep transformation, this time it's different – because AI is transforming it at an altogether different speed.

As the race to make these systems even more powerful accelerates, AI will soon emerge ***in everything, everywhere, all at once***, reinventing entire sectors.

To adapt to this reinvented economy, people will need to reinvent their skills, careers, to upskill and reskill on an ongoing basis.

Now, with the appearance of the latest wave of generative artificial intelligence (AI), OECD predicts that AI would "radically transform" 1.1 billion jobs in the next 10 years. Given the impressive new technologies that have arrived since, some say this seems like an almost bashfully conservative estimate.

AI use in higher education is set to grow by 40%_ between 2021 and 2027 and the market for AI in education is anticipated to reach b $80 billion worldwide by 2030. All the educational institutions are posed a question: how to use technology for prepare students for this revolution.

Traditionally, people have turned to higher education to acquire the knowledge and skills to succeed in the world as it exists.

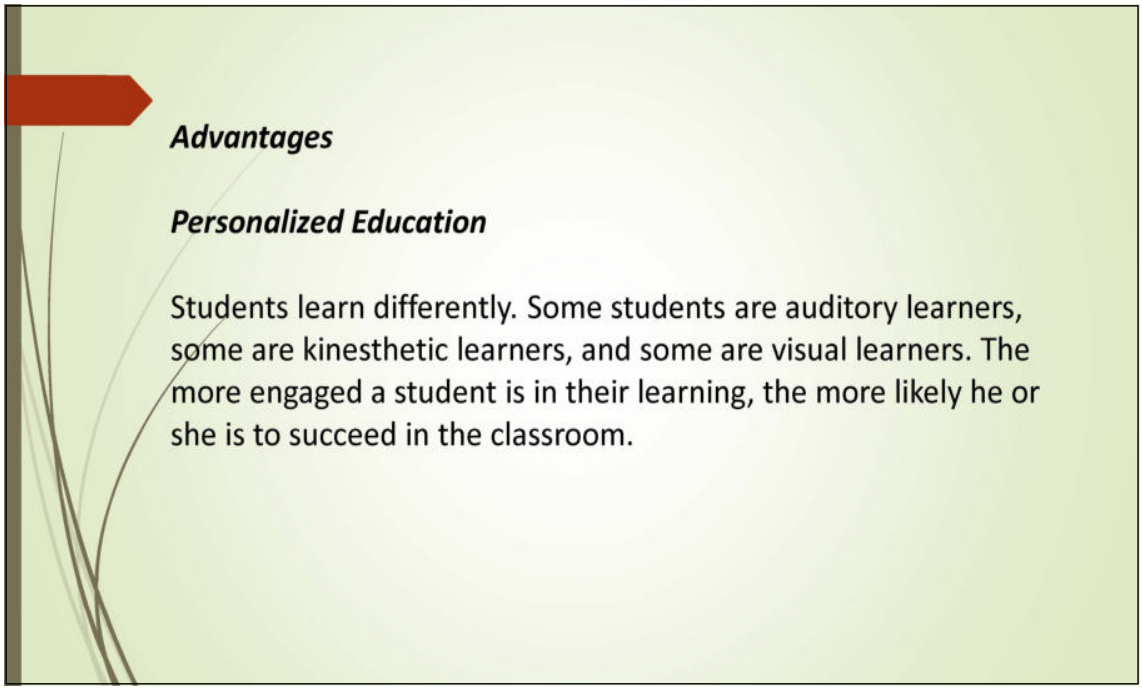
The challenge today is that because of AI, the world will exist in a radically different way tomorrow, and again the day after.

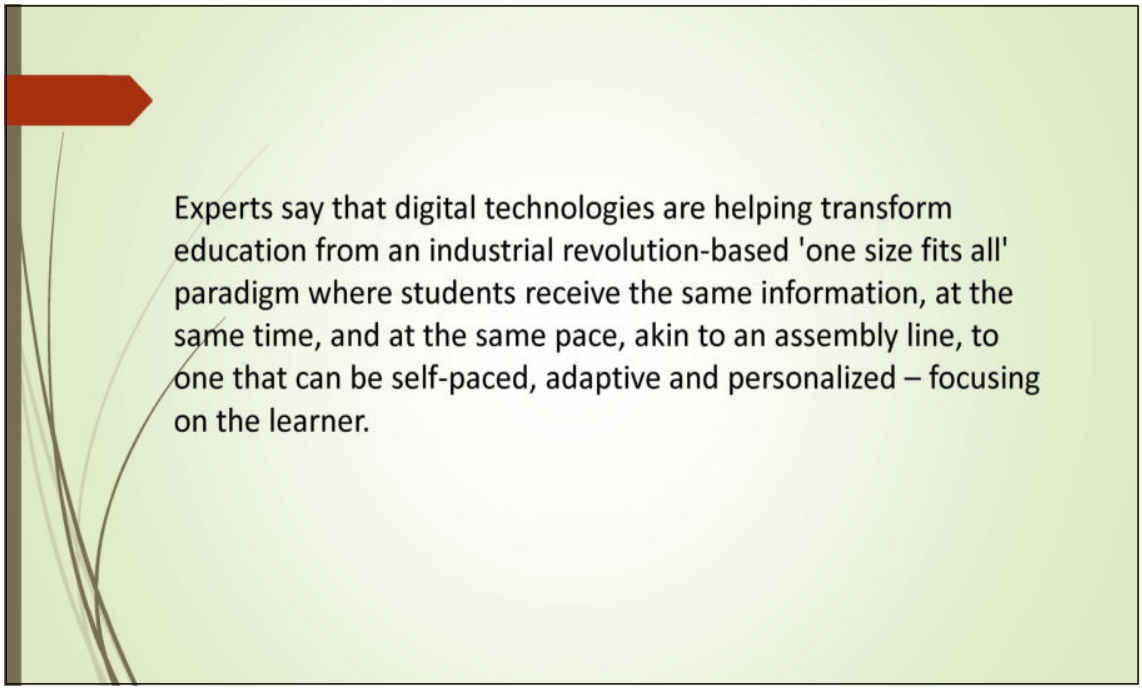
Therefore, educating people for reinvention in this fluid context will require the reinvention of higher education itself.

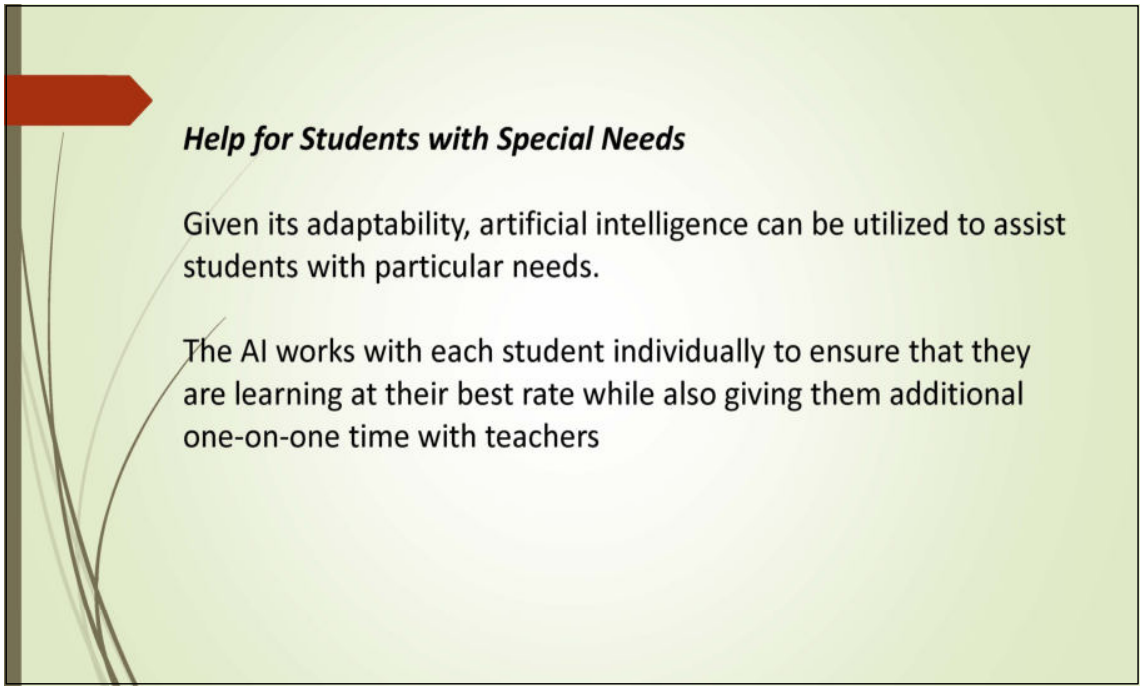
The big question – is the deployment of generative AI widen or narrow existing educational divides, improve the quality and equity in education?

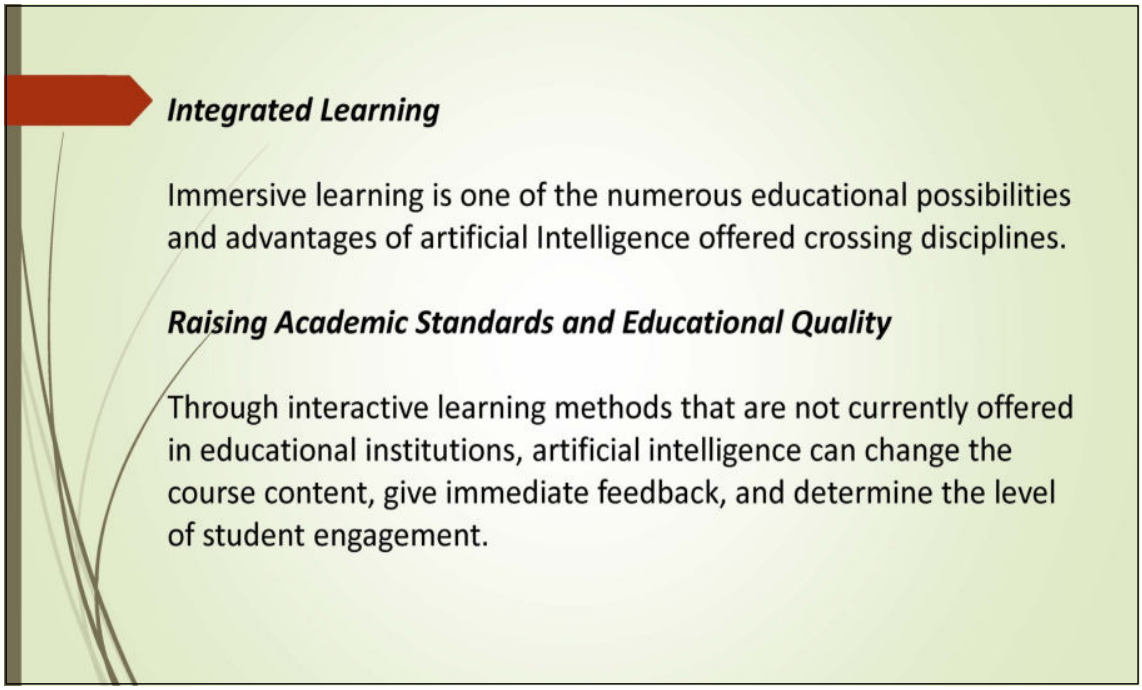
The introduction of Artificial Intelligence (AI) technology in education is welcomed with a mixed reaction of excitement, concern, and a whole lot of questions.

While some are enthused about the potential of AI to innovate the education system, some are left with worries and concerns about the potential risks it poses both to education and to society.


Advantages
Personalized Education
Students learn differently. Some students are auditory learners, some are kinesthetic learners, and some are visual learners. The more engaged a student is in their learning, the more likely he or she is to succeed in the classroom.


Experts say that digital technologies are helping transform education from an industrial revolution-based 'one size fits all' paradigm where students receive the same information, at the same time, and at the same pace, akin to an assembly line, to one that can be self-paced, adaptive and personalized – focusing on the learner.


Help for Students with Special Needs
Given its adaptability, artificial intelligence can be utilized to assist students with particular needs.
The AI works with each student individually to ensure that they are learning at their best rate while also giving them additional one-on-one time with teachers


Integrated Learning
Immersive learning is one of the numerous educational possibilities and advantages of artificial Intelligence offered crossing disciplines.
Raising Academic Standards and Educational Quality
Through interactive learning methods that are not currently offered in educational institutions, artificial intelligence can change the course content, give immediate feedback, and determine the level of student engagement.

Disadvantages of Artificial Intelligence:

Reduced Human Interaction

Students don't interact with actual humans during class and will be unable to practice and gain social skills. When they graduate from high school and need these kinds of relationships for their jobs or even just social contacts as adults, it becomes difficult for them.

Absence of emotional intelligence and soft skills

- Interpersonal, listening, collaboration, empathy,
- Leadership, problem-solving, critical thinking, conflict-solving, intercultural skills.

Communication Skills

AI can formulate responses, but humans need to formulate and idea and communicate them effectively.

Addiction to AI

Students may become less interested in learning and rely on AI.

Reduces Students Capacity for Thought

Threat that it reduces students ability to think critically and increases their reliance on technology rather than teaching them how to complete tasks independently.

Plagiarism

One of the most prevalent educational concerns around generative AI systems is their use for plagiarism, which in this context would mean students using the system to do work that they then present as something they created without AI assistance.

Equity

As with most AI systems, equity is a concern. Generative AI systems are trained on data that will reflect the biases of the world that data stems from. This, in turn, can lead to those biases and prejudices becoming embedded in the AI itself.

This is particularly concerning in an education context where students may be using these tools to learn more about the world around them, meaning the tool may impart or reinforce biases in students' thinking.

A Strong Word of Caution

- Absence of checks, rules or regulations with regard to integration of generative AI technologies into education systems In most national contexts, the time, steps and authorizations needed to validate a new textbook far surpass those required to move generative AI utilities into schools and classrooms
- Generative AI and the future of education utilities often required no validation at all. They have been 'dropped' into the public sphere without discussion or review.

Educational resources bound for use in schools and with schoolchildren are typically vetted, at a minimum, on four main criteria:

(1) accuracy of content,
(2) age appropriateness,
(3) relevance of pedagogical methods, and
(4) cultural and social suitability which encompasses checks to protect against bias.

AI models and applications that claim to have educational utility should be examined according to similar criteria.

Recent UNESCO Paper: The Way Forward

The education sector needs to make these 'qualifying' determinations on its own terms. It cannot rely on the corporate creators of AI to do this work. Such industry self-regulation would introduce an unacceptable conflict of interest.

To vet and validate new and complex AI applications for formal use in school will require ministries of education to build their capacities, likely in coordination with other regulatory branches of government, in particular those regulating technologies.

Education is and should remain a deeply human act rooted in social interaction.

AI may deepen the already existing gaps – 800 mln people are still illiterate, 2,7 billion people, one third of the population on earth, does not have access to internet.

Investing in technology is important, but investing in human capacity is equally important in order to narrow existing educational divides – in teachers, educators, educational institutions a systems.

Even if AI starts to exceed humans in a wide range of intellectual abilities, educating people will remain important and developing literacy most of all.

We should ask the question: How will education shape our reception and steer the integration of new technology – both technology that is here today and technology that remains on the horizon? Our education systems can define a trajectory and establish norms for how we understand world-changing technology – and, by extension, how we allow it to influence us and our world.

We should uphold the 'raison d'être' of education: to help us make informed choices of how we want to construct our lives and our societies.

The central task for education at this inflection moment is less to incorporate new and largely untested AI applications to advance against the usual targets for formal learning. Rather, it is to help people develop a clearer understanding of when, by whom, and for what reasons this new technology should and should not be used.

"AI is also giving us impetus to re-examine what we do in education, how we do it, and, most fundamentally, why.

Now is the time to rise to these challenges. As AI experts remind us, our continued well-being and perhaps even survival may be at stake.

Our work must be infused with urgency as we endeavor together to ensure that our education systems play a key role in getting humanity's transition into an AI world right. "

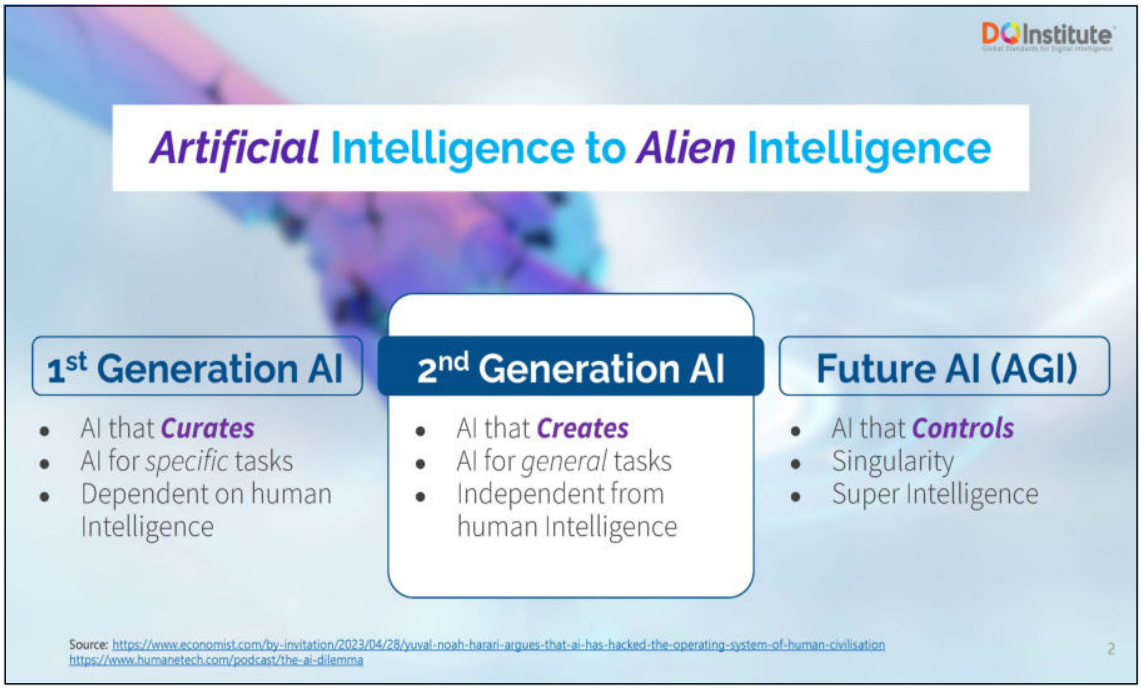
주제 토론

발표 3

Digital-ESG: ESG for AI

박유현 DQ Institute 대표


DQInstitute
Digital-ESG:
ESG for AI
Yuhyun Park PhD
1

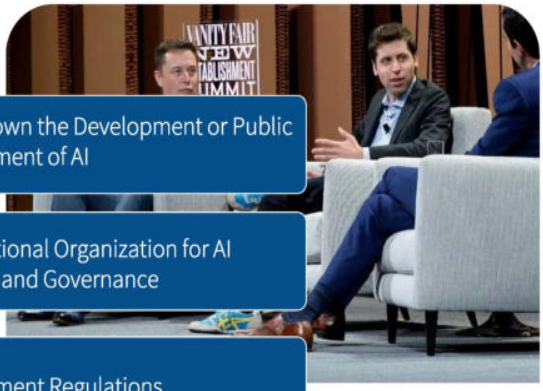

DQInstitute
Artificial Intelligence to Alien Intelligence
1st Generation AI
AI that Curates
AI for specific tasks
Dependent on human Intelligence
2nd Generation AI
AI that Creates
AI for general tasks
Independent from human Intelligence
Future AI (AGI)
AI that Controls
Singularity
Super Intelligence
Source: https://www.economist.com/by-invitation/2023/04/28/yuval-noah-harari-argues-that-ai-has-hacked-the-operating-system-of-human-civilisation
https://www.humanetech.com/podcast/the-ai-dilemma
2


DQInstitute
73%
OF CHILDREN HAVE EXPERIENCED
AT LEAST ONE CYBER-RISK
3


10 Digital Disasters
1) Hypersexualization of Children
2) Mass Job Loss & Extreme Inequality
3) Loss of Family Value & Identity
4) Manipulated Democracy
5) Total Surveillance & Media Control
6) Loss of National Sovereignty & Security
7) Loss of Human Connection & Mental Health Crisis
8) Loss of Free Will & Digital-Bio Transhuman
9) Environmental Disaster, Exacerbated by Technology
10) AI-Powered WAR and Massacre
Human Enslavement
DQInstitute

DQ Institute

The Existential Threat from AI



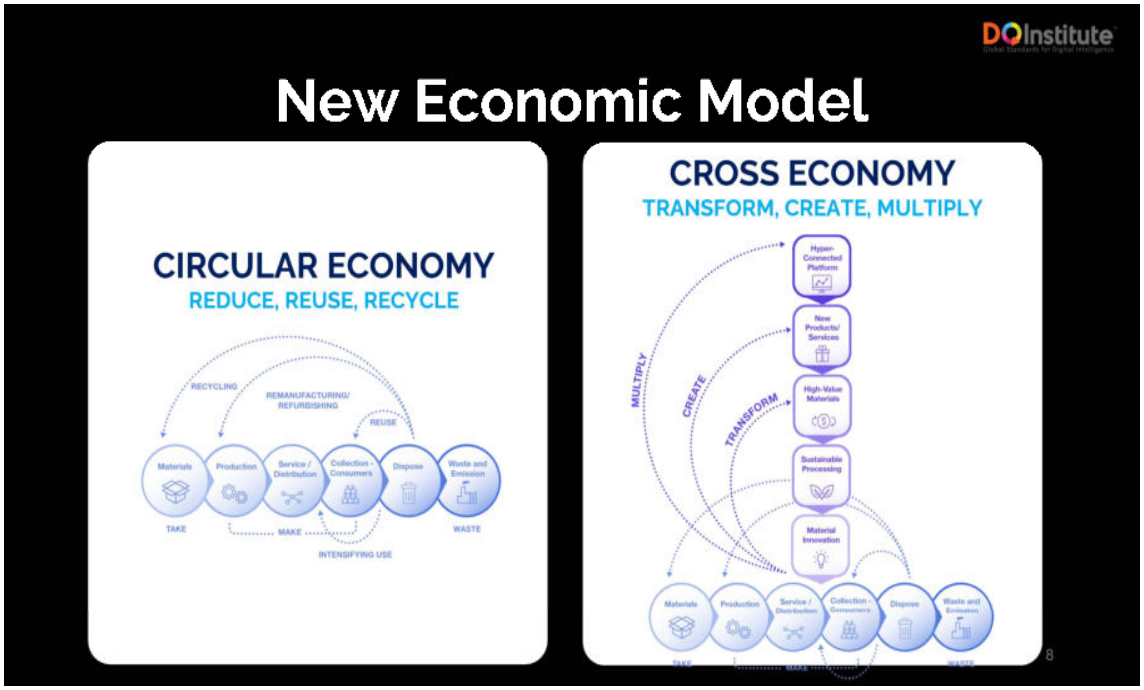
- Slow Down the Development or Public Deployment of AI
- International Organization for AI Control and Governance
- Government Regulations

"We haven't figured out how to regulate the first-generation AI."

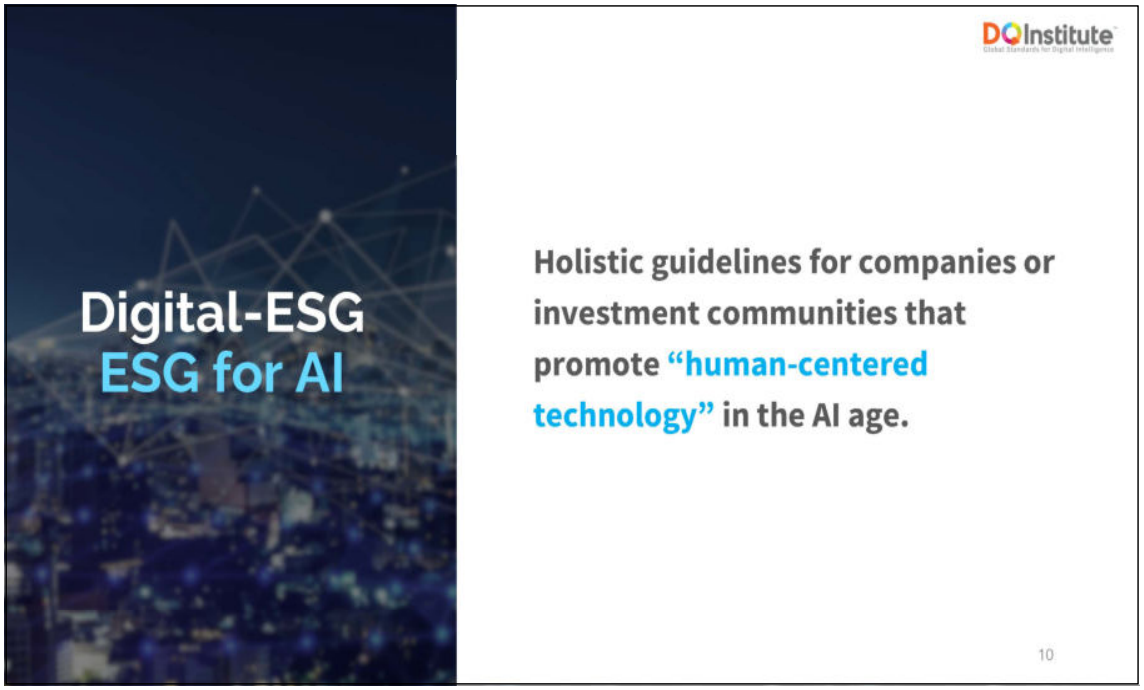
Image Source: PHOTO BY MIKE WINDLE/GETTY IMAGES FOR VANITY FAIR
https://www.humanetech.com/podcast/the-ai-dilemma

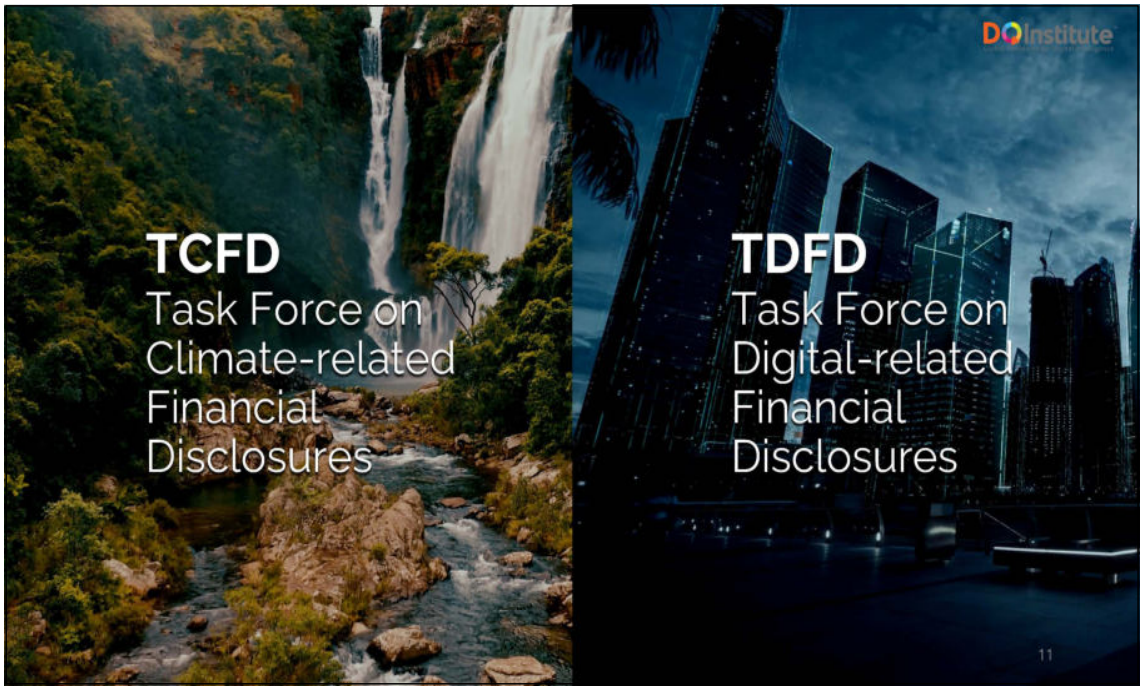
5

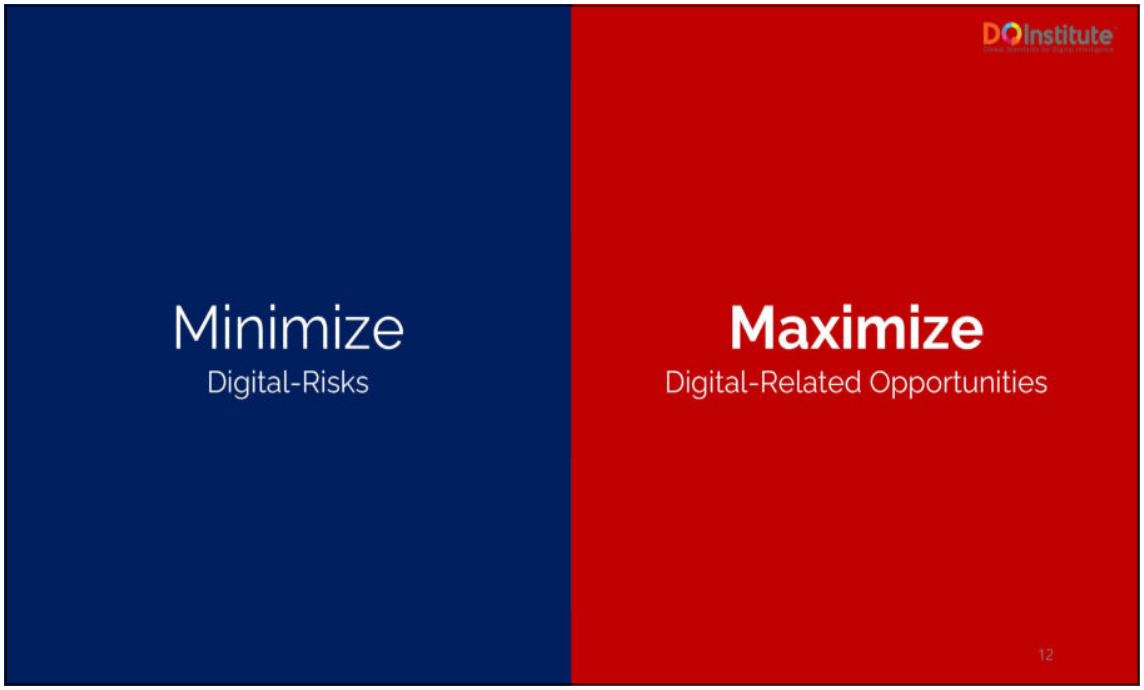

DQInstitute
New World
Beyond-Sustainability
The Phy-Gital World


DQInstitute
New Economic Model
CIRCULAR ECONOMY
REDUCE, REUSE, RECYCLE
RECYCLING
REMANUFACTURING/ REFURBISHING
REUSE
Materials
Production
Service / Distribution
Collection - Consumers
Dispose
Waste and Emission
TAKE
MAKE
WASTE
INTENSIFYING USE
CROSS ECONOMY
TRANSFORM, CREATE, MULTIPLY
Hyper-Connected Platform
New Products/ Services
High-Value Materials
Sustainable Processing
Material Innovation
MULTIPLY
CREATE
TRANSFORM


DQInstitute
New ESG
The Phy-Gital World
Environmental
Digital-Environmental
Social
Digital-Social
Governance
Digital-Governance
9


Digital-ESG
ESG for AI
DQInstitute
Holistic guidelines for companies or investment communities that promote "human-centered technology" in the AI age.
10


TCFD
Task Force on
Climate-related
Financial
Disclosures
DOInstitute
TDFD
Task Force on
Digital-related
Financial
Disclosures
11


Minimize
Digital-Risks
DOInstitute
Maximize
Digital-Related Opportunities
12

DQ Institute

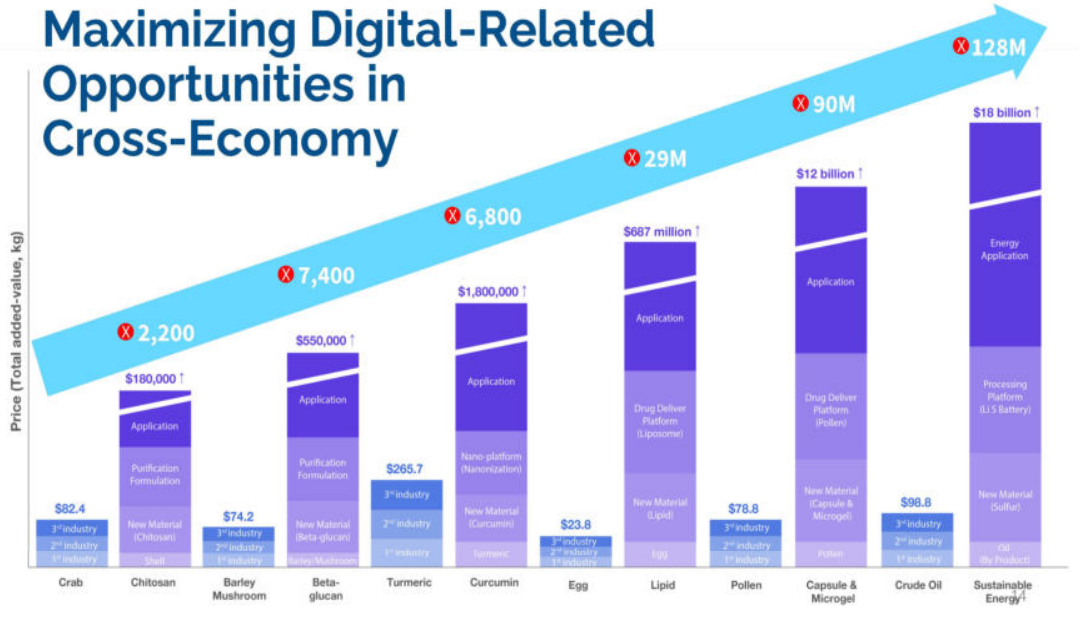
Minimizing Digital-Related Risks

DQ Area 1 Identity	DQ Area 2 Use	DQ Area 3 Safety	DQ Area 4 Security	DQ Area 5 Emotional Intelligence	DQ Area 6 Communication	DQ Area 7 Literacy	DQ Area 8 Right
Strategy, Compliance & Financial Risks	Operational & Environmental Risks	Stakeholder Safety & Health Risks	Data, System, & Network Risks	Societal Impact Risks	Communication Risks	Talent & Disruption Risks	Digital Human Rights Risks
• Legal Compliance Risk • Emerging Tech Risk • Finance and Fraud Risk • Capital Market Risk • Strategic Risk • AI Black Box Risk	• Environment Risk • Customer Experience Risk • Automation Risk • Execution Risk • Model Risk	• Content-related Risk • Contact-related Risk • Conduct-related Risk • Contract-related Risk • Fake information Risk • Technology Overuse Risk • Metaverse Safety Risk	• Data Security Risk • Social Engineering Risk • System Reliability Risk • Network Reliability Risk • Third-Party Risk • Cloud Risk • IoT Risk	• Digital Exclusion Risk • Digital Illiteracy Risk • Digital Gender Gap Risk	• Brand Risk • Reputational Risk • Digital Advertising Risk	• Workforce Skill Risk • Digital Work Culture Risk • Labor Market Risk	• Privacy Management Risk • Biometric and inferred Data Risk • Conflicting Interest Risk • IP Management Risk • Digital Surveillance Risk • AI-Related Risk

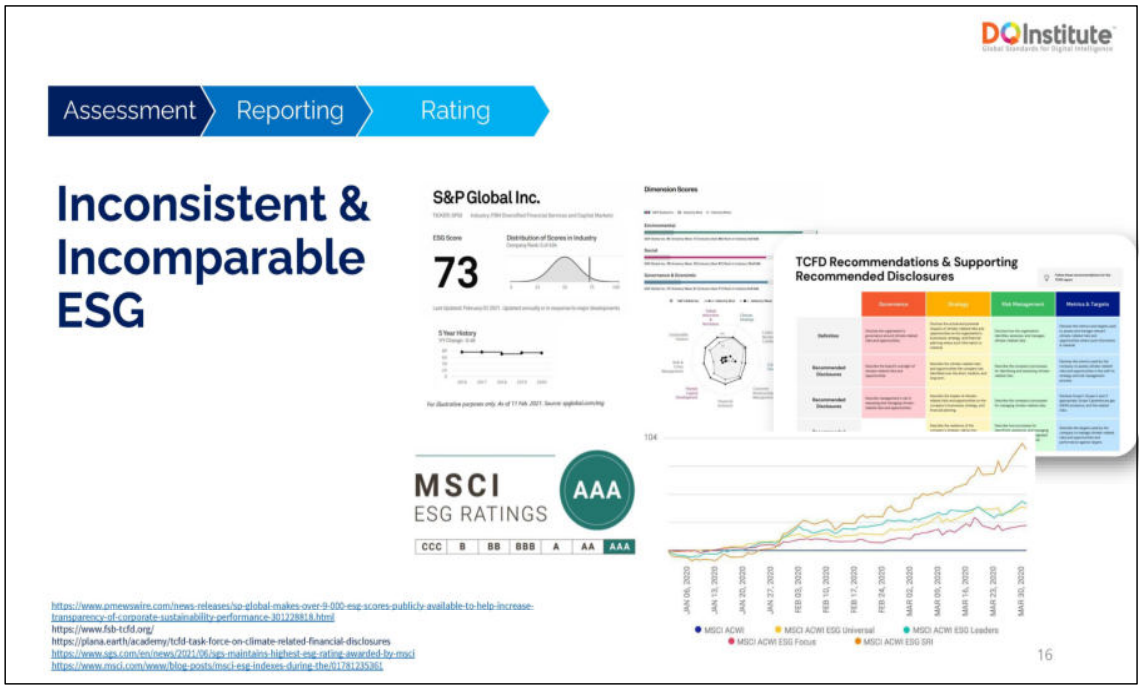
13

DQ Institute

Maximizing Digital-Related Opportunities in Cross-Economy




DQInstitute
Maximize
Digital-related Opportunities
1. Resources
2. Empowerment
Minimize
Digital-related Risks
3. Harms
4. Control
DESG1
Human-Centered Tech Initiative
DESG8
Digital Communication & Stakeholder Engagement
DESG2
Cross Economy
DESG7
Digital Rights & Ethics
Digital ESG
DESG3
Digital Human Capital Development
DESG6
Data Security & System Reliability
DESG4
Digital Inclusion
DESG5
Stakeholder Digital Safety
15


DQInstitute
Assessment
Reporting
Rating
Inconsistent & Incomparable ESG
S&P Global Inc.
ESG Score
73
MSCI
ESG RATINGS
AAA
CCC B BB BBB A AA AAA
TCFD Recommendations & Supporting Recommended Disclosures
MSCI ACWI
MSCI ACWI ESG Universal
MSCI ACWI ESG Leaders
MSCI ACWI ESG Focus
MSCI ACWI ESG SRI
https://www.prnewswire.com/news-releases/sp-global-makes-over-9-000-esg-scores-publicly-available-to-help-increase-transparency-of-corporate-sustainability-performance-301228818.html
https://www.fsb-tcfd.org/
https://plana.earth/academy/tcfd-task-force-on-climate-related-financial-disclosures
https://www.sgs.com/en/news/2021/06/sgs-maintains-highest-esg-rating-awarded-by-msci
https://www.msci.com/www/blog-posts/msci-esg-indexes-during-the/01781235361
16

DQInstitute

Increasing Company Value

by
Minimizing Digital-Related Risks &
Maximizing Digital-Related
Opportunities
to Achieve UN SDGs

17

DQInstitute

Thank you.

contact@dqinstitute.org
https://tdfd-global.org/

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디지털 문명,
지속가능의 길을 묻다